WHAT IS CLAIMED IS:

data; and

$i\mathcal{C}_{\mathcal{O}}$	1. A rathod for high-speed, 3D imaging of optically-invisible
72	radiation, the method comprising:
\mathcal{C}_{3}	detecting optically-invisible radiation within an environment to obtain
4	signals;
5.	processing the signals to obtain stereoscopic data; and
6	displaying the stereoscopic data in the form of optically-visible
7	radiation images superimposed on a view of the environment so that a user can
8	obtain a 3D view of the radiation by utilizing natural human stereo imaging
9	processes.
1	2. The method as claimed in claim 1 wherein the environment is
2	a virtual environment.
2	Virtual City it Cimicin.
1	3. The method as claimed in claim 1 wherein the environment is
2	an optically-visible environment.
2	an optically-visible environment.
1	4. The method as claimed in claim 1 wherein the radiation is
2	ionizing radiation.
2	ionizing radiation.
1	5. The method as claimed in claim 4 further comprising
1	
2	energizing material so that the material emits or deflects the ionizing radiation.
1	
1	6. The method as claimed in claim 1 wherein the radiation is
2	infrared radiation.
20	
37	7. A system for high-speed, 3D imaging of optically-invisible
2 9	radiation, the system comprising:
3	a detector subsystem for detecting optically-invisible radiation within
4	an environment to obtain signals;
5	a signal processor for processing the signals to obtain stereoscopic

7	a display subsystem for displaying the stereoscopic data in the form
8	of optically-visible radiation images superimposed on a view of the environment so
9	that a user can obtain a 3D view of the radiation by utilizing natural human stereo
10	imaging processes.

- The system as claimed in claim 7 wherein the environment is 8. 1 2 a virtual environment.
- The system as claimed in claim 7 wherein the environment is 9. 1 an optically-visible environment. 2
- The system as claimed in claim 7 wherein the radiation is 10. 1 ionizing radiation. 2 .
- The system as claimed in claim 10 further comprising means 11. 1 for energizing material so that the material emits or deflects the ionizing radiation. 2
- The system as claimed in claim 7 wherein the radiation is 12. 1 infrared radiation. 2
- The system as claimed in claim 7 wherein the detector 13. 1 subsystem includes a set of field or area detectors. 2
- The system as claimed in claim 7 wherein the detector 14. 1 subsystem includes a set of point detectors. 2
- The system as claimed in claim 7 wherein the detector 15. 1 subsystem includes a set of passive detectors. 2
- The system as claimed in claim 7 wherein the detector 16. 1 subsystem includes a set of active detectors. 2

1

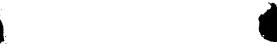
2





1	17. The system a	s claimed in claim 13 wherein the radiation is		
2	gamma-ray radiation and wherein th	e set of field detectors includes a pair of gamma-		
3	ray or other positional radiation det	ectors.		
		•		
1	-	s claimed in claim 17 wherein the gamma-ray		
2		cameras and wherein each of the gamma-ray		
3		cameras is capable of scanning the environment through a plurality of angles and		
4	wherein the signals are processed to	o locate a source within the environment.		
1	1 19. The system a	as claimed in claim 7 wherein the radiation is		
2	2 ionizing radiation and wherein the	detector subsystem includes a scintillator and a		
3	3 collimator for directing the ionizing	g radiation into the scintillator.		
1	1 20. The system a	s claimed in claim 19 wherein the scintillator is		
2	•			
_	Z our vou.			
1	1 21. The system	as claimed in claim 7 wherein the detector		
2				
1	1 22. The system a	s claimed in claim 21 wherein the compound eye		
2	2 detector includes a plurality of ind	vidual detectors.		
1		as claimed in claim 22 wherein the plurality of		
2	2 individual detectors are movable in	idependently or as a group.		
1	1 24. The system a	as claimed in claim 21 wherein the compound eye		
2		movable in three dimensions.		
1	-	as claimed in claim 14 wherein the signa		
2	2 processor processes the signals to	obtain a 3D map of radiation-emitting sources.		

26. The system as claimed in claim 7 wherein the detector subsystem has stereoscopic capabilities.



1	27. The system as claimed in claim 7 wherein the detector	
2	subsystem is portable.	
1	28. The system as claimed in claim 7 wherein the display	
2	subsystem includes a see-through display subsystem and wherein the system further	
3	includes a tracking system for tracking the display subsystem.	
1	29. The system as claimed in claim 28 wherein the display	
2	subsystem is head-mountable.	
1	30. The system as claimed in claim 7 wherein the system provides	
2	real-time visual feedback about location and relative strength of at least one	
3	radiation-emitting source.	
1	31. An ionizing radiation detector comprising:	
2	an ionization substrate for converting ionizing radiation into a signal;	
3	a converter coupled to the substrate for converting the signal into a	
4	corresponding electrical signal; and	
5	a positioner for moving the substrate in three dimensions to image	
6	over a surface of a sphere.	
	·	
1	32. The detector as claimed in claim 31 wherein the substrate is	
2	a scintillator for converting ionizating radiation into photons of light.	
1	33. The detector as claimed in claim 32 wherein the signal is an	
2	optical signal and the converter is a photodetector.	
1	34. The detector as claimed in claim 32 wherein the signal is an	
2	optical signal and the converter is a multiplier phototube.	

1	35. An array of detectors wherein each of the detectors is a		
2	detector as claimed in claim 31 and wherein the detectors are arranged in a		
3	curvilinear geometry.		
1	36. The array as claimed in claim 35 wherein the detectors are		
2	arranged so that the array forms a substantially hemispherical device.		
1	37. The array as claimed in claim 35 wherein the substrates of the		
2	detectors are formed from separate materials.		
1	38. An ionizing radiation detector comprising:		
2	an ionization substrate formed from a single material and having a		
3	curved first surface and a second surface opposing the first surface for converting		
4	ionizing radiation at the curved first surface into a signal; and		
5	a radiation shield disposed at the second surface to substantially block		
6	ionizing radiation at the second surface.		
1	39. The detector as claimed in claim 38 wherein the radiation		
2	shield is a fanned collimator.		
1	40. The detector as claimed in claim 38 wherein the ionization		
2			
3	substrate is a curved scintillator for converting ionizating radiation into photons of light.		
1	41. The detector as claimed in claim 38 wherein the ionization		
2	substrate is a semiconductor substrate.		
1	42. The detector as claimed in claim 38 wherein the detector forms		
2	a substantially hemispherical device.		
1	43. The detector as claimed in claim 38 wherein the second surface		
2	is curved and is substantially parallel to the curved first surface.		